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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,831	06/26/2006	Hajime Matsumoto	2008_0999	1087

513 7590 08/27/2010  
WENDEROTH, LIND & PONACK, L.L.P.  
1030 15th Street, N.W.,  
Suite 400 East  
Washington, DC 20005-1503

EXAMINER
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NGUYEN, KHANH TUAN

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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08/27/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com  
coa@wenderoth.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,831	<b>Applicant(s)</b> MATSUMOTO ET AL.	
	<b>Examiner</b> KHANH T. NGUYEN	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/04/2010</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Final***

***Election/Restrictions***

1. Applicant's election of species "o" (Py101.1 [C<sub>2</sub>F<sub>5</sub>BF<sub>3</sub>]) in the reply filed on 07/23/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Response to Amendment***

2. The amendment filed on 06/07/2010 is entered and acknowledged by the Examiner. Claims 1 and 7-9 are currently pending in the instant application. Claims 2-6 have been cancelled.

3. The rejection of claims 1-9 under 35 U.S.C. 102(e) as being anticipated by "A New Class of Hydrophobic Ionic Liquids: Trialcyl(2-methoxyethyl)ammonium Perfluoroethyl trifluoroborate" (Zhou) is withdrawn in view of the above amendment.

4. The rejection of claims 1-9 under 35 U.S.C. 103(a) as being unpatentable over JP 2002-063934 (hereafter refer to as Takeda) in view of either U.S. Pat. 4,537,843 (Shishikura) or U.S. Pub. 2006/0092597 AI (Pub '597) is withdrawn in view of the above amendment.

***Information Disclosure Statement***

5. The information disclosure statement (IDS) filed on 03/04/2010 has been considered. An initialed copy accompanies this Office Action.

***Claim Rejections - 35 USC § 103***

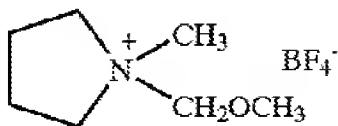
6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. **Claims 1 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over either U.S. Pub. 2003/0202316 A1 (hereinafter Kawasato), EP 1380569 A1 (hereinafter Sato), or EP 1548866 A1 (hereinafter Maruo) in view of either JP 2002-063934 (hereinafter Takeda) or "Low-melting, Low-viscous, Hydrophobic Ionic Liquids: N-Alkyl(alkyl ether)-N-methylpyrrolidinium Perfluoroethyltrifluoroborate" (hereinafter Zhou).**

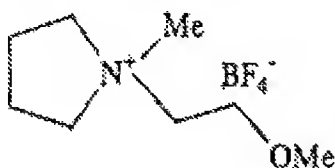
*(Please note the Takeda reference was previously cited in the PTO-892 on 12/07/2009. The Zhou reference was previously cited in the PTO-1449 on 09/01/2006.)*

Kawasato discloses an electrolytic solution (i.e. ionic liquid) capable of forming an electric double layer (See Abstract; [0001]). In one embodiment (See [0032]; Formula 6), Kawasato discloses the electrolytic solution comprising of

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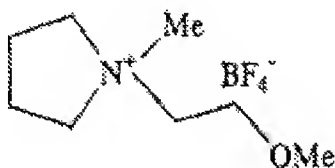


Sato discloses an electric storage device, electrical double layer capacitors, and secondary batteries having excellent low-temperature properties obtained by using a quaternary salt (or ionic liquid) comprising of



(See Abstract; [0001]; and Formula (5) at [0038]).

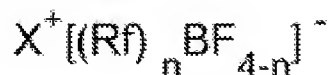
Maruo discloses a nonaqueous electrolyte that contains an ionic liquid having excellent low-temperature properties comprising



(See Abstract; [0010]; and Formula (5) at [0023]).

The above prior arts differ from the instant applicant in that the prior arts did not suggest the claimed C<sub>2</sub>F<sub>5</sub>BF<sub>3</sub> anion.

Takeda discloses a nonaqueous electrolytic solution useful in an electrical double layer capacitor comprising of



in order to decrease the moisture content of the nonaqueous electrolyte that causes metal part of an electrochemical element corrode or make the nonaqueous electrolyte disassemble (See Abstract; [0001]; and [0003] to [0006]). Takeda discloses  $X^+$  is a cation including quaternary ammonium;  $R_f$  is a perfluoroalkyl group; and  $n$  is an integer from 1 to 4 (See [0005] and [0006]).

Zhou discloses a hydrophobic ionic liquid comprising of a quaternary ammonium cation and a fluoroanion represented by a formula  $[R_fBF_3]^-$  wherein  $R_f = n-C_mF_{2n+1}$  and  $m = 1-4$  (See page 1636, Left Column). Zhou discloses that the  $[C_2F_5BF_3]^-$  based anion shows a lower melting point than the  $[BF_3]^-$  based anion and provides high ionic conductivities (See Abstract).

It would have been obvious for a person having ordinary skill in the art at the time the invention was made to modify the electrolytic solution (ionic liquid) of either Kawasato, Sato, or Maruo by substituting the trifluoroborate  $[BF_3]^-$  anion with either the  $[(R_f)_nBF_{4-n}]^-$  cation of Takeda or  $[R_fBF_3]^-$  cation of Zhou. A person having ordinary skill in the art would be motivated to substituting the trifluoroborate  $[BF_3]^-$  anion with either the  $[(R_f)_nBF_{4-n}]^-$  cation or  $[R_fBF_3]^-$  cation in order to reduce the moisture content of the nonaqueous electrolyte that

causes metal part of an electrochemical element corrode or make the nonaqueous electrolyte disassemble as suggested by Takeda (See [0004]) and lower the melting point of the electrolytic solution and provides high ionic conductivities to the electrolytic solution as suggested by Zhou (See Abstract).

***Response to Arguments***

8. Applicant's arguments with respect to the claims above have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated

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from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is (571)272-8082. The examiner can normally be reached on Monday-Thursday 7:00-6:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Kopec/  
Primary Examiner, Art Unit  
1796

/K. T. N./  
Examiner, Art Unit 1796  
August 19, 2010